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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/623,946	11/03/2000	Josef Laumen	1324	2110

7590 12/31/2003
Striker Striker & Stenby
103 East Neck Road
Huntington, NY 11743

EXAMINER

CHAUDRY, MUJTABA M

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 12/31/2003

16

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/623,946

Applicant(s)

LAUMEN ET AL.

Examiner

Mujtaba K Chaudry

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-12 is/are pending in the application.
- 4a) Of the above claim(s) 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-12 is/are rejected.
- 7) ☒ Claim(s) 1-8 and 10-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 15, 2003 has been entered.

Claim Objections

Claim 1 is objected to because of the following informalities:

- In line 2, the extra space in the expression “(1+x^c)” needs to be omitted.
- The term “adaptable” needs to be omitted. It is not deemed to be a positive limitation.

Appropriate correction is required.

Claim 2 is objected to because of the following informalities:

- The reference numbers “(3)”, “(4)” and (31, 52,...53, 54) need to be removed from claim language, since no patentable weight can be given.

Appropriate correction is required.

Claim 3 is objected to because of the following informalities:

- In line 2 a parenthesis needs to be inserted in the generator polynomial.

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Appropriate correction is required.

Claim 4 is objected to because of the following informalities:

- The reference number “(103)” needs to be removed from claim language, since no patentable weight can be given.

Appropriate correction is required.

Claim 5 is objected to because of the following informalities:

- The reference number “(102)” needs to be removed from claim language, since no patentable weight can be given.
- In line 3, “M” needs to be replaced with “m.”

Appropriate correction is required.

Claim 6 is objected to because of the following informalities:

- In line 2, the extra space in the generator polynomial needs to be omitted.
- In line 3, the phrase “int hat” needs to be changed to “in that” as intended.
- The term “adaptable” needs to be omitted. It is not deemed to be a positive limitation.

Appropriate correction is required.

Claim 7 is objected to because of the following informalities:

- The term “adaptable” needs to be omitted. It is not deemed to be a positive limitation.

Appropriate correction is required.

Claim 8 is objected to because of the following informalities:

- The claim language refers back to the specification in parenthesis. The is inappropriate and needs to addressed or cancelled.

Appropriate correction is required.

Claim 10-12 is objected to because of the following informalities:

- The term “adaptable” needs to be omitted. It is not deemed to be a positive limitation.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The values for b and d are not defined in the claim language.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In line 4 of the claim the phrase “maximal number” is not defined and therefore is indefinite.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The values for b and d are not defined in the claim language.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The values for b and d are not defined in the claim language.

Response to Amendment

Applicant's arguments/amendments with respect to amended claims 1, 6 and 7, previously present claims 2-5, 8 and 10-12 filed October 15, 2003 have been fully considered but are not persuasive and are rejected under newly cited art. As a note of reference, claim 9 was cancelled.

Claim Rejections - 35 USC § 103

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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Claims 1-8 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephen B. Wicker (**Error Control Systems** – ISBN 0132008092) further in view of Gordon et al. (USPN 5148432).

As per claims 1, 3, 6-7 and 10-12, Wicker teaches (text: pages 437-440) encoding and decoding data using Fire codes. Wicker teaches (p. 437, paragraphs 2-3) Fire codes that are capable of correcting a single burst in a variable-length code word as stated in the present application. Wicker teaches (p. 438) coding data with a fire code of generator polynomial, $G(x) = (x^{(2b-1)} + 1) * g(x)$ where $g(x)$ is a irreducible polynomial of degree m and the value of b may be free set within predetermined limits as stated in the present application. Applicant uses the polynomial $G(x) = (x^{(c)} + 1) * P(x)$ and states in the specification (p. 7 of application) that $c = 2b - 1$.

Wicker does not explicitly teach the variable “ c ” in the irreducible polynomial to be changeable so that the variable redundancy can be obtained as stated in the present application.

However, Gordon et al. (herein after Gordon), in an analogous art teaches (title and abstract) an arrayed disk drive system for providing memory to a computer, wherein the arrayed system has a plurality of disk drives configured to form an array. The arrayed disk drives are accessed by a plurality of channels, each channel accessing a plurality of disk drives, including a means for controlling the logical configuration of the arrayed disk drives to appear to the computer as any conceivable arrangement of disk drives, whereby the arrayed disk drive may appear to the computer as the plurality of disk drives, or as one large disk drive comprised of all the arrayed disk drives, or any combination in between. Particularly, Gordon teaches a means for

providing a plurality of levels of redundancy on data read or written by the computer to the arrayed disk drives is provided, as well as means controlled by the controlling means for enabling from none to the plurality of levels of redundancy to operate on data being read or written from the arrayed disk drives. Gordon teaches (col. 7, lines 55-65) the parity or error detection and correction scheme used by the embedded SCSI controller is referred to as Fire code. Fire code is a mathematical code for detecting and correcting short bursts of errors within a very long field. The fire code generator, a microprocessor and a microprocessor memory are all located within the disk drive 14 itself. Furthermore, Gordon teaches (col. 16-17) to implement variable redundant schemes.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate adaptability for Fire Codes of Gordon within the teachings of Wicker to form the present method and apparatus. This modification would have been obvious to one of ordinary skill in the art at the time the invention was made because one of ordinary skill in the art would have recognized that by varying the value of "C" in the irreducible polynomial of the fire code would have enhanced the error detecting/correcting capability since the system would be adaptive.

As per claims 2, 4 and 5, Wicker teaches (p. 438-439) the technique to calculate the value for $2b-1$, which is equivalent to c in the present application. Wicker also teaches (p. 437) a disk register whose length can be set to b , wherein b can be less than m as stated in the present application.

As per claim 8, Wicker teaches (p. 440) the Fire decoding operation in which the redundancy properties are incorporated as stated in the present application. In particular, steps 3

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and 4 (p. 440) Wicker states if one syndrome is nonzero and the other is zero, then the codeword contains a uncorrectable but detectable error, which is analogous to d in the present application. The equation ($d = c + 1 - b$) in the present application which may be interpreted as $c = (b + d) - 1$ wherein the term $b + d$ represents the bundle error and the detectable error and is incorporated in steps 3 and 4 of Wicker.

The Examiner disagrees with the Applicants' rejection of amended claims 1, 6 and 7, previously present claims 2-5, 8 and 10-12. All arguments have been considered. It is the Examiner's conclusion that amended claims 1, 6 and 7, previously present claims 2-5, 8 and 10-12 are not patentably distinct or non-obvious over the prior art of record.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wicker teaches Fire codes that are capable of correcting a single burst in a variable-length code word as stated in the present application. Gordon teaches the parity or error detection and correction scheme used by the embedded SCSI controller is referred to as Fire code, which is a mathematical code for detecting and correcting short bursts of errors within a very long field.

Any inquiries concerning this communication should be directed to the examiner, Mujtaba Chaudry who may be reached at 703-305-7755. The examiner may normally be reached Mon – Thur 7:30 am to 4:30 pm and every other Fri 8:00 am to 4:00 pm.

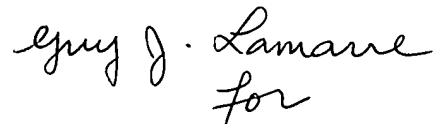
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If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's supervisor, Albert DeCady at 703-305-9595. The fax phone number for the organization where this application is assigned is 703-746-7239.

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist at 703-305-3900.



Mujtaba Chaudry
Art Unit 2133
December 18, 2003



Albert DeCady
Primary Examiner